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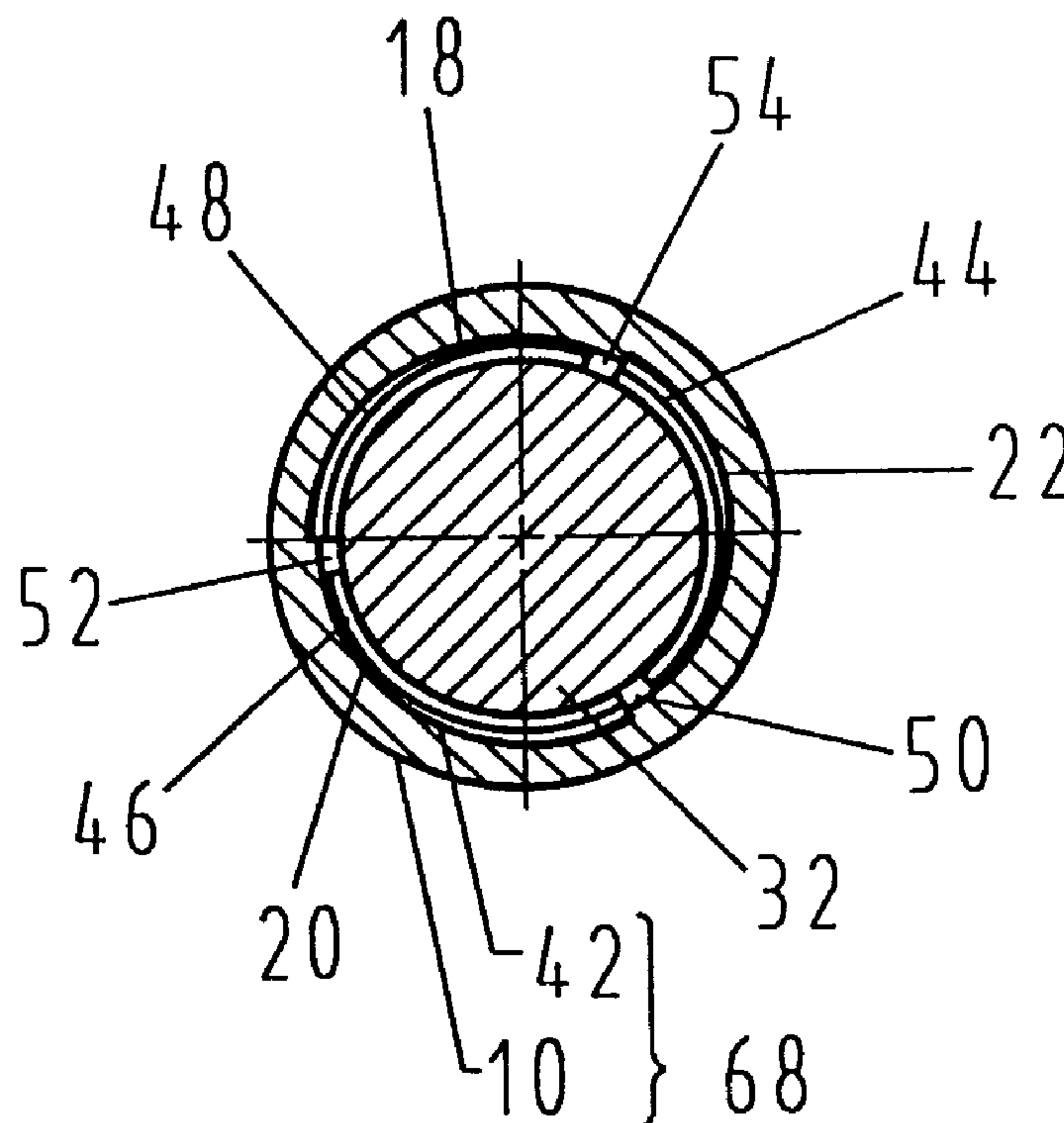
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(54) Titre : CAPUCHON DESTINE A UN INSTRUMENT D'ECRITURE, DE DESSIN OU DE PEINTURE

(54) Title: CAP FOR A WRITING, DRAWING OR PAINTING IMPLEMENT



(57) Abrégé/Abstract:

A cap (68) for a writing, drawing or painting instrument, comprising a casing (10) for said cap and a clamping ring (42), characterized in that the clamping ring is arranged separately inside the casing of said cap and the inner peripheral surface of the casing of the cap, together with the outer and inner peripheral surfaces of the clamping ring are embodied in such a way that when the cap is placed on the housing (32) of a writing, drawing or painting instrument and a subsequent relative axial rotation occurs between the cap and the housing, an axial interference fit of the cap on the housing ensues.

Abstract

A cap for a writing, drawing or painting implement, with a cap sheath and a clamping ring, characterised by the fact that the clamping ring is disposed separately in the cap sheath, and the inner peripheral surface the cap sheath and the outer and inner peripheral surfaces of the clamping ring are designed such that, by placing the cap on the housing of a writing, drawing or painting implement and then executing a relative axial twist between the cap and the housing, a firm axial fit between the cap and the housing results.

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“Cap for a writing, drawing or painting implement”

The present invention relates to a cap for a writing, drawing or painting implement with a cap sheath and a clamping ring.

Many writing implements with removable caps, especially fountain pens, possess a screw-on cap which, while ensuring a secure connection between the housing of the writing implement and the cap, is nevertheless inconvenient and therefore cannot be used quickly.

DE-U 1 802 121 discloses a cap in accordance with the pre-characterising portion of Claim 1. The clamping ring there is disposed on the housing of the writing implement and provides a snap connection. There is, however, a risk that the snap connection might give way and that the housing might slip out of the cap or that the cap might slip out of the housing.

The invention is therefore based on the problem of improving the generic cap in such a way that a secure connection is provided between the housing of a writing, drawing or painting implement and the cap, while at the same time ensuring ease of operation.

In accordance with the invention, this problem is solved by having the clamping ring disposed separately in the cap sheath and designing the inner peripheral surface of the cap sheath and the outer and inner peripheral surfaces of the clamping ring such that, by placing the cap on the housing of a writing, drawing or painting implement and then executing a relative axial twist between the cap and the housing, a firm axial fit between the cap and the housing results.

In particular, it can be provided for the inner peripheral surface of the clamping ring to be designed such that, by placing the cap on the housing, a friction fit or positive fit results between the clamping ring and the housing.

In addition, it can be provided for the inner peripheral surface of the cap sheath and the outer peripheral surface of the clamping ring to be designed such that, by placing the cap on the housing of the writing, drawing or painting implement and then executing a relative axial twist between the cap and the housing, a friction fit results between the cap sheath and the clamping ring.

A particular embodiment of the invention is characterised by the fact that at least one wedge-shaped surface rising radially in the circumferential direction is disposed on the outer peripheral surface of the clamping ring and that a corresponding number of matching wedge-shaped surfaces are disposed on the inner peripheral surface of the cap sheath.

It is advantageous for the slopes of the wedge-shaped surfaces facing each other after the clamping ring has been inserted into the cap sheath to be identical.

Finally, it can be provided for the cap to be designed such that it can be placed on the housing and creates a seal in the process.

The invention is based on the surprising finding that the use of a clamping ring which develops its function by twisting the cap makes it possible to create a secure connection in a simple manner. The cap can be placed on in the usual manner and locked in place with a simple twist ($< 120^\circ$). The use of a separate clamping ring means that it is not necessary to search radially for the correct position, as is the case with a bayonet catch.

Furthermore, during the production of the cap, no spindle removal is needed, which would be necessary with a thread for a screw connection.

Further features and advantages of the invention will become apparent from the claims and the following description, in which one working embodiment is explained in detail with reference to the schematic drawings. There,

Figure 1 shows a longitudinal section view of a cap sheath of a cap in accordance with a particular embodiment of the invention;

Figure 2 shows a section view along the line II-II in Figure 1;

Figure 3 shows a view of the side wall of a housing for a writing implement;

Figure 4 shows a perspective view of a clamping ring for the cap;

Figure 5 shows a view of the clamping ring in the direction of arrow A in Figure 4;

Figure 6 shows a view of the clamping ring in the direction of arrow B in Figure 4;

Figure 7 shows a section view along the line VII-VII in Figure 6;

Figure 8 shows a longitudinal section view of the housing of Figure 3 with the cap attached;

Figure 9 shows a further longitudinal section view of the housing of Figure 3 with the cap attached; and

Figure 10 shows a section view along the line X-X in Figure 8.

The cap sheath 10 shown in Figure 1 has an open end 12 and a closed end (not shown). Beginning at the open end 12, the cap sheath has a first portion 14 with an internal diameter d_1 , a second portion with three wedge-shaped surfaces rising radially in the circumferential direction, only two of which, namely 18 and 20, are visible, a third portion 23 with an internal diameter d_2 , where $d_2 < d_1$, a fourth portion 24 with an internal diameter d_3 , where $d_3 < d_2$, and a fifth portion 26 with an internal diameter d_4 , where $d_4 < d_3$. This creates inwardly projecting shoulders 28 and 30. Shoulder 30 serves as a stop face for a clamping ring (not shown).

As Figure 2 shows, the wedge-shaped surfaces 18, 20 and 22 each extend through 120° .

The housing 32 of a writing implement shown in Figure 3, e.g. a fountain pen, has a housing tip 34 with two cylindrical portions 36 and 38 with different external diameters, which are connected to one another via a frustoconical portion 40 and the shoulder 39.

Figure 4 shows a perspective view of a clamping ring 42. It can be clearly seen that, in its longitudinal direction, the clamping ring 42 has wedge-shaped surfaces 44, 46 and 48 on the outer peripheral surface 3 rising radially over a portion in the circumferential direction, which are shaped in accordance with the wedge-shaped surfaces 18, 20 and 22. Between the wedge-shaped surfaces 44, 46 and 48 in each case, there is a gap 50, 52 or 54.

The clamping ring 42 can be subdivided into three portions 56, 58 and 60. The wedge-shaped surfaces 44, 46, 48 are disposed in portion 56. Three shoulders 62, 64 and 66 (see also Figure 6) extending in the circumferential direction merely over a partial portion are provided in portion 58. The third portion 60 has a constant external diameter, which is less than the effective external diameter of portions 56 and 58.

Figure 5 shows a view of the clamping ring 42 in the direction of the arrow A. Each gap 50, 52 and 54 extends over an angular range of 10° .

Figure 7 shows a section view along the line VII-VII of Figure 6.

Figure 8 shows a longitudinal section view of the housing 32 of Figure 3 with the cap 68 attached. The section corresponds to the section of Figure 7. The cap 68 comprises the cap sheath 10 and the clamping ring 42, which is separate from the cap sheath. The clamping ring 42 is in friction fit with the housing 32. In addition, it can be seen that the shoulder 39 of the housing 32 abuts a shoulder 70 on the inside of the clamping ring 42. The clamping ring 42, for its part, has a portion 60 which abuts the shoulder 30 (see Figure 1) of the cap sheath 10.

Figure 9 shows a further longitudinal section view of the housing 32 of Figure 3 with the cap 68 attached. Whereas the section shown in Figure 8 runs through the shoulder 64, this section passes through one of the gaps 50, 52 and 54.

Figure 10 shows a section view along the line X-X of Figure 8. The three wedge-shaped surfaces 18, 20 and 22 of the clamping ring 42 and the corresponding wedge-shaped surfaces 44, 46 and 48 of the cap sheath 10 can be seen clearly. When the clamping ring 42 is twisted relative to the cap sheath 10, its internal diameter is reduced accordingly. This leads to the cap 68 being clamped and thus also being firmly seated axially on the housing 32. The twisting imparted to the clamping ring 42 is caused by the friction fit with the housing 32. The cap 68 can be placed on in the usual fashion and locked in place with only a slight twist ($< 120^\circ$).

The features of the invention disclosed in the above description and in the claims can be essential, both alone and in any combination, for carrying out the invention in its various embodiments.

Claims

1. A cap (68) for a writing, drawing or painting implement, with a cap sheath (10) and a clamping ring (42),

characterised by the fact that

the clamping ring (42) is disposed separately in the cap sheath (10), and the inner peripheral surface of the cap sheath and the outer and inner peripheral surfaces of the clamping ring are designed such that, by placing the cap on the housing (32) of a writing, drawing or painting implement and then executing a relative axial twist between the cap and the housing, a firm axial fit between the cap and the housing results.

2. The cap (68) as claimed in Claim 1, characterised by the fact that the inner peripheral surface of the clamping ring (42) is designed such that, by placing the cap on the housing (32), a friction fit or positive fit results between the clamping ring and the housing.
3. The cap (68) as claimed in Claim 2, characterised by the fact that the inner peripheral surface the cap sheath (10) and the outer peripheral surface of the clamping ring (42) are designed such that, by placing the cap on the housing (32) of the writing, drawing or painting implement and then executing a relative axial twist between the cap and the housing, a friction fit results between the cap sheath and the clamping ring.
4. The cap (68) as claimed in Claim 3, characterised by the fact that at least one wedge-shaped surface (44, 46, 48) rising radially in the circumferential direction is disposed on the outer peripheral surface of the clamping ring (42) and that a corresponding number of matching wedge-shaped surfaces (18, 20, 22) are disposed on the inner peripheral surface of the cap sheath (10).
5. The cap (68) as claimed in Claim 4, characterised by the fact that the slopes of the wedge-shaped surfaces (18, 48; 20, 46; 22, 44) facing each other after the clamping ring (42) has been inserted into the cap sheath (10) are identical.
6. The cap (68) as claimed in any of the preceding claims, characterised by the fact that the cap (68) is designed such that it can be placed on the housing (32) and creates a seal in the process.

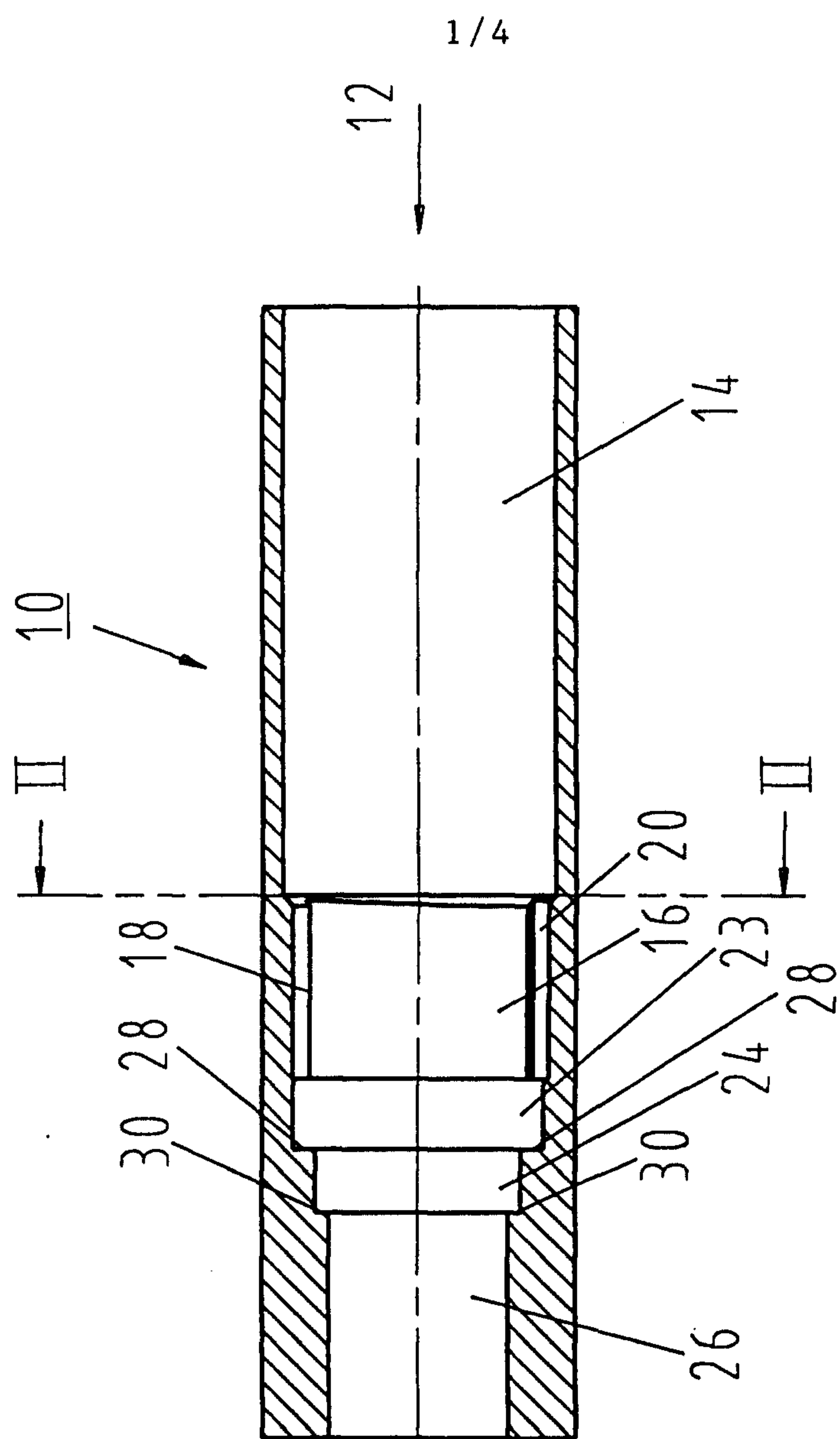


Fig. 1

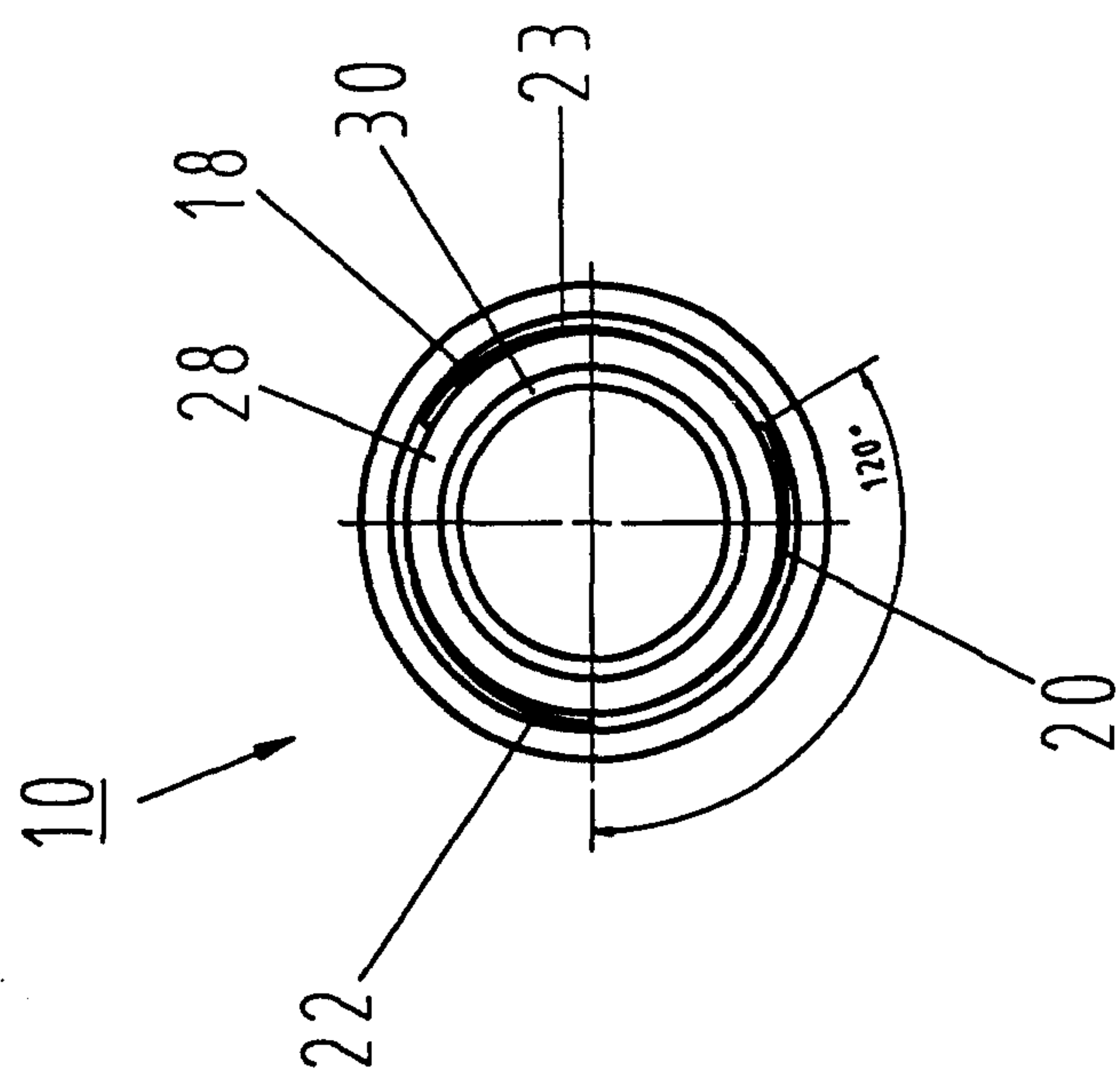


Fig. 2

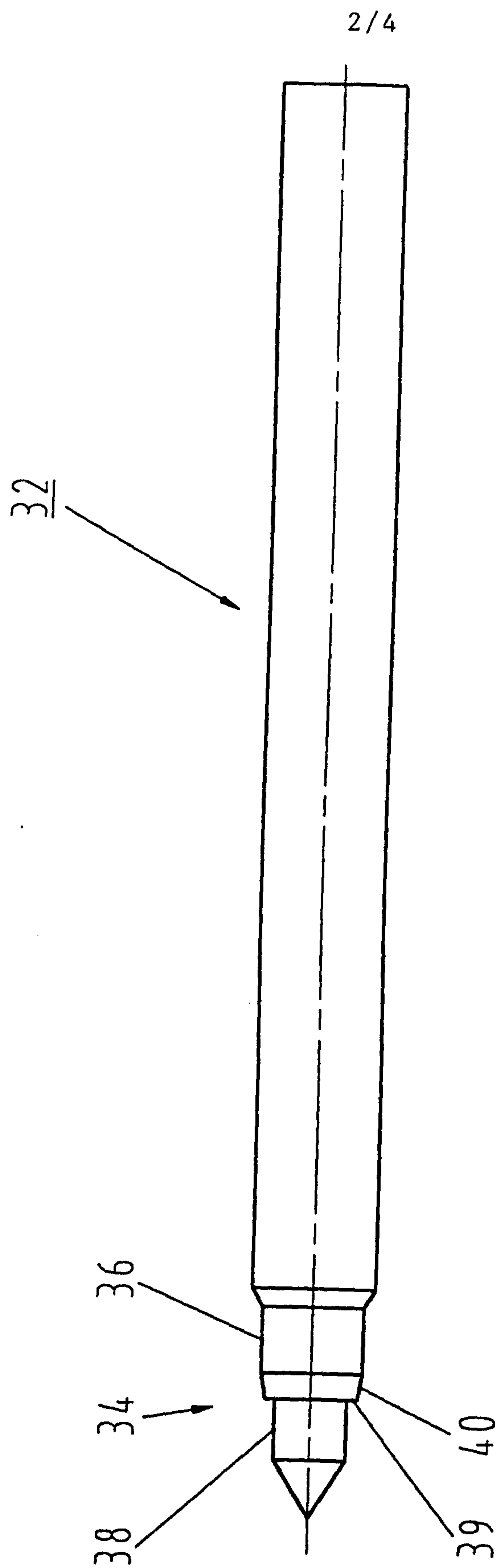


Fig. 3

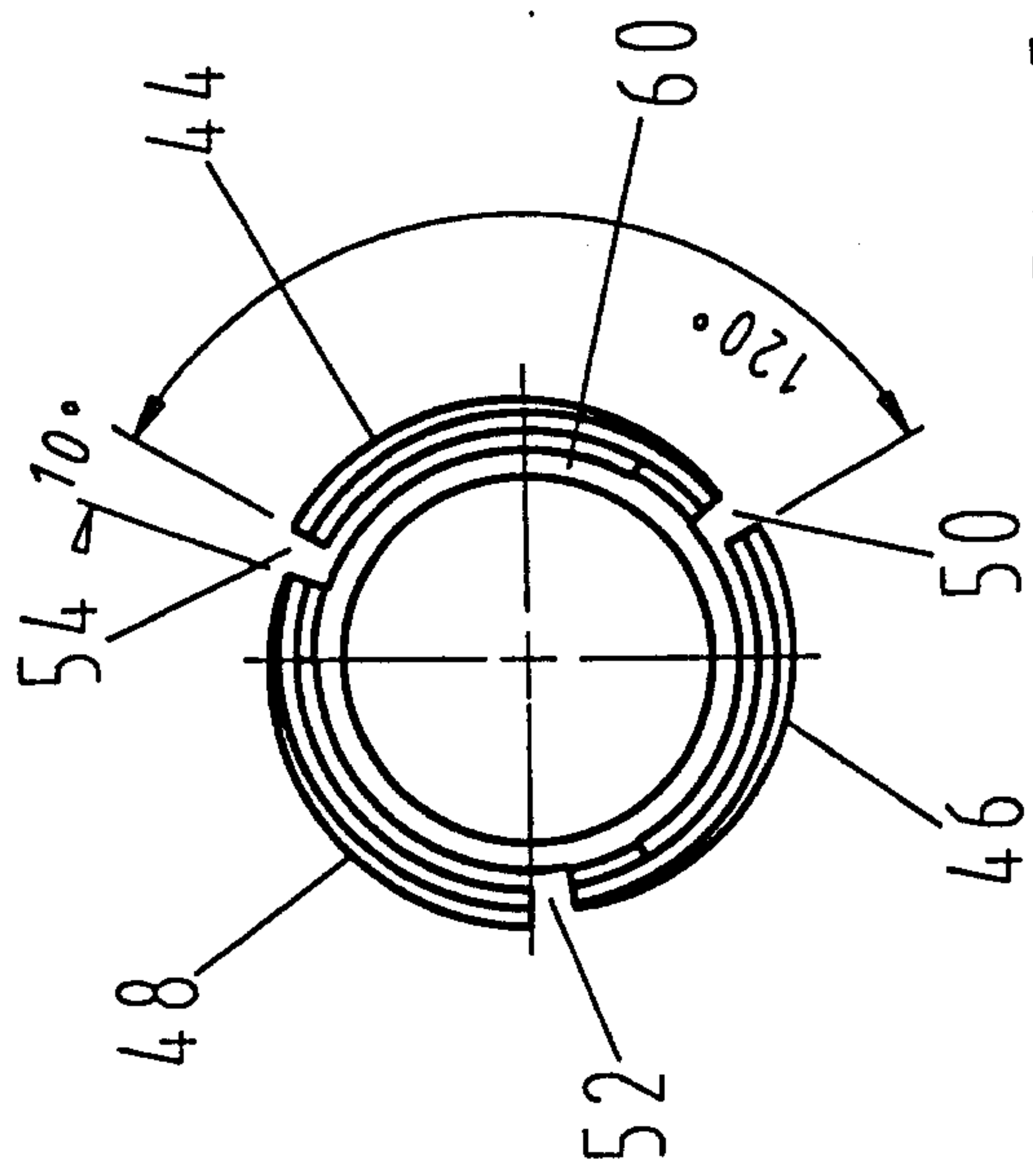


Fig. 5

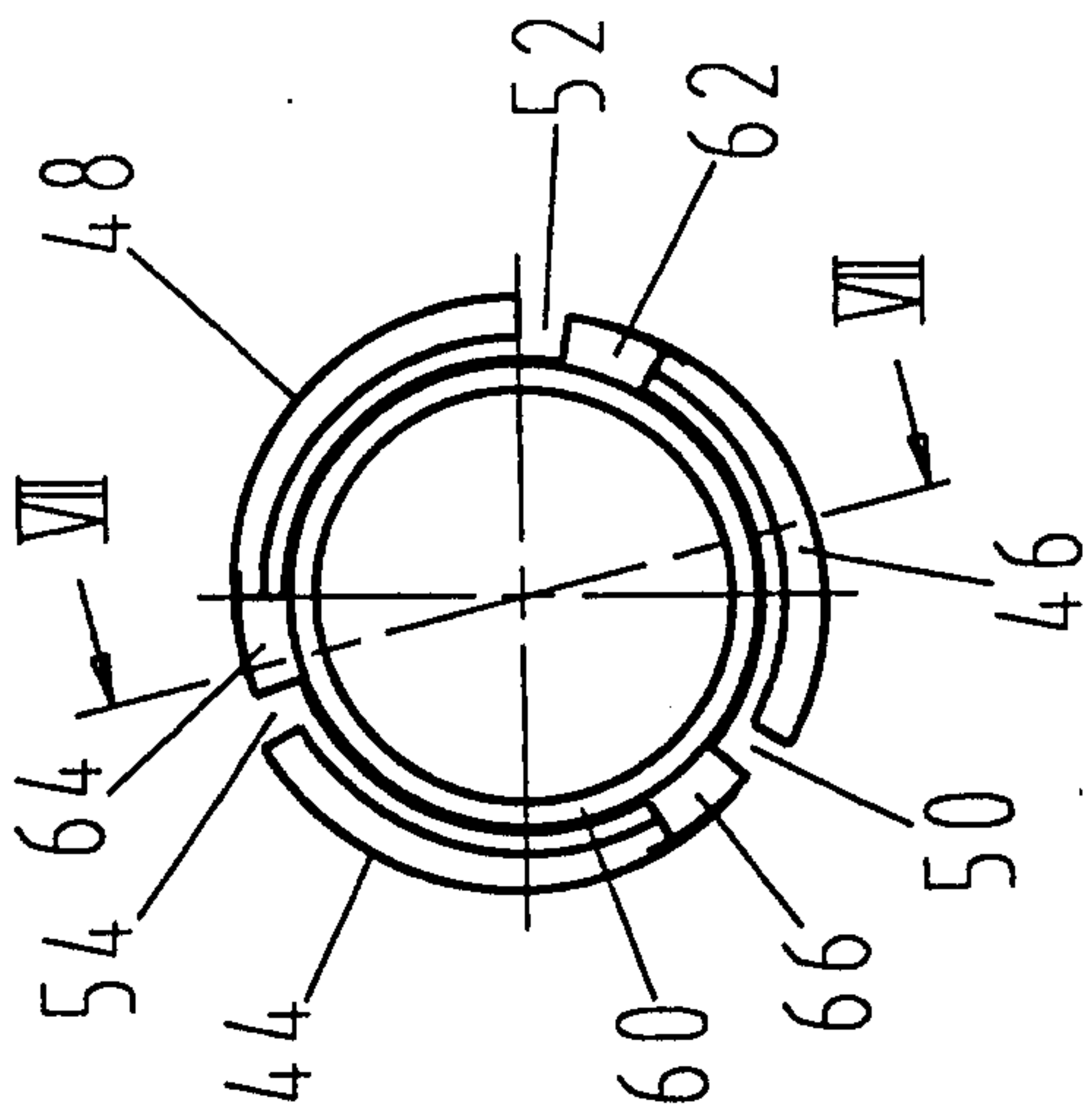


Fig. 6

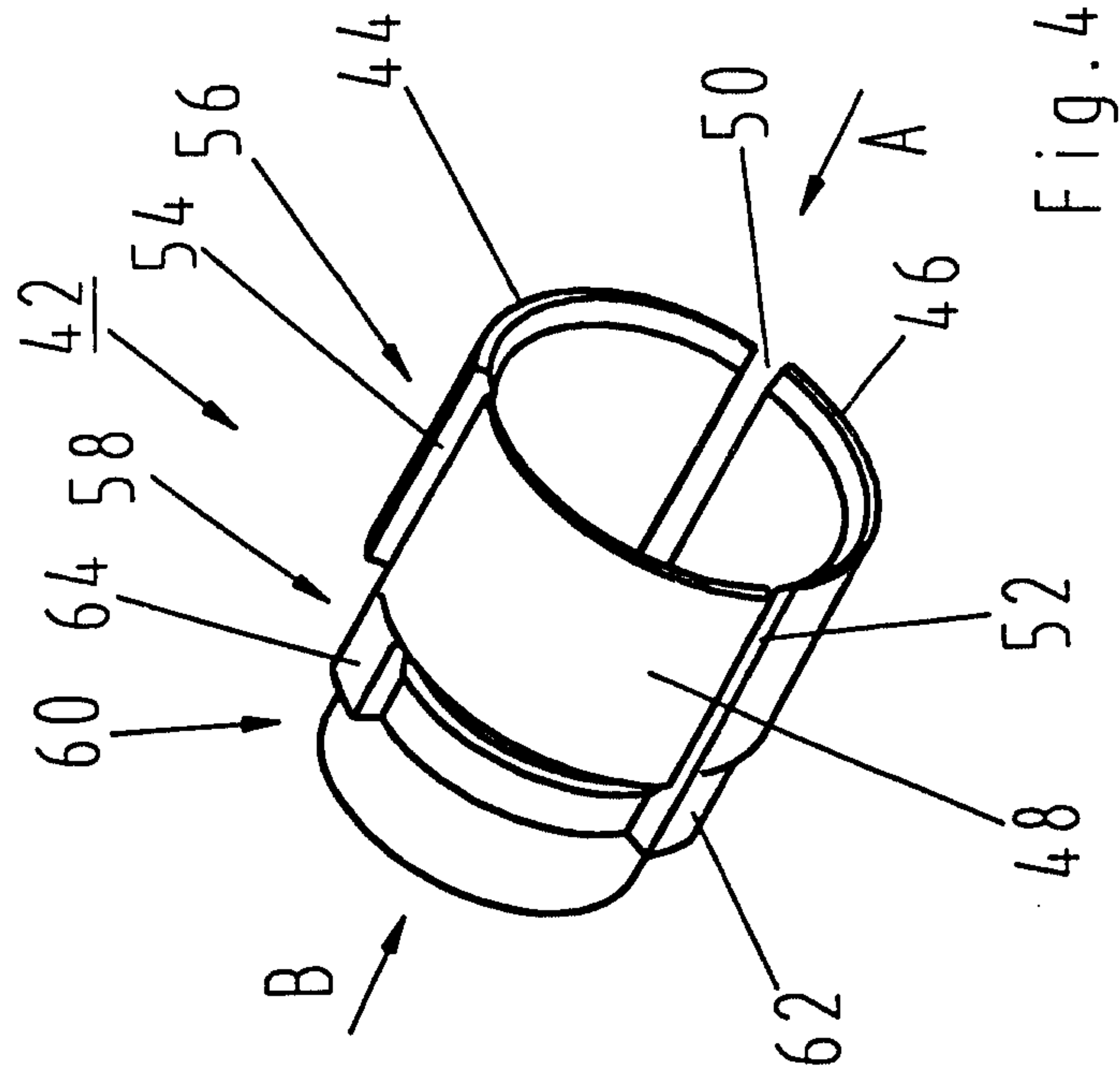


Fig. 4

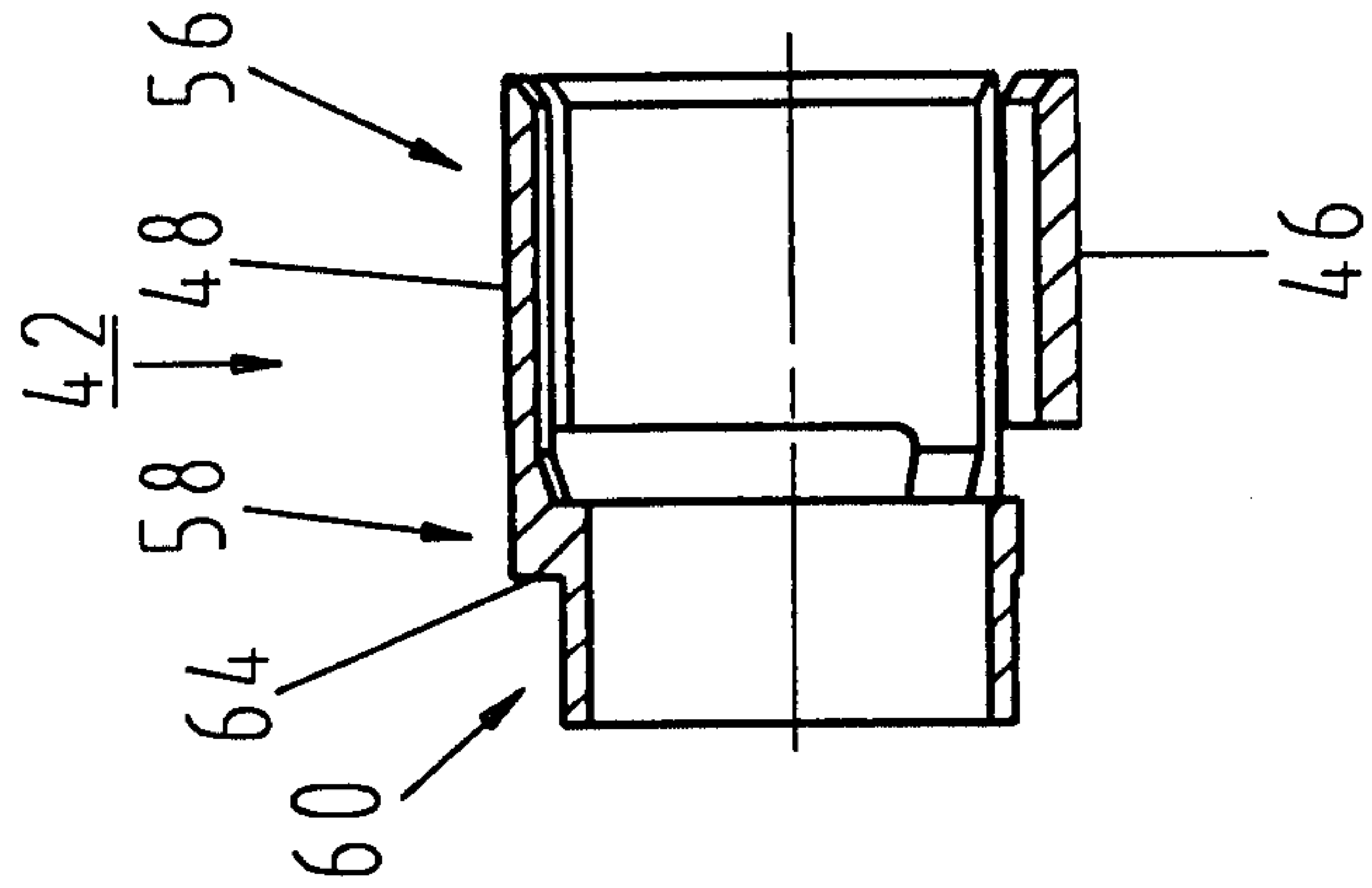
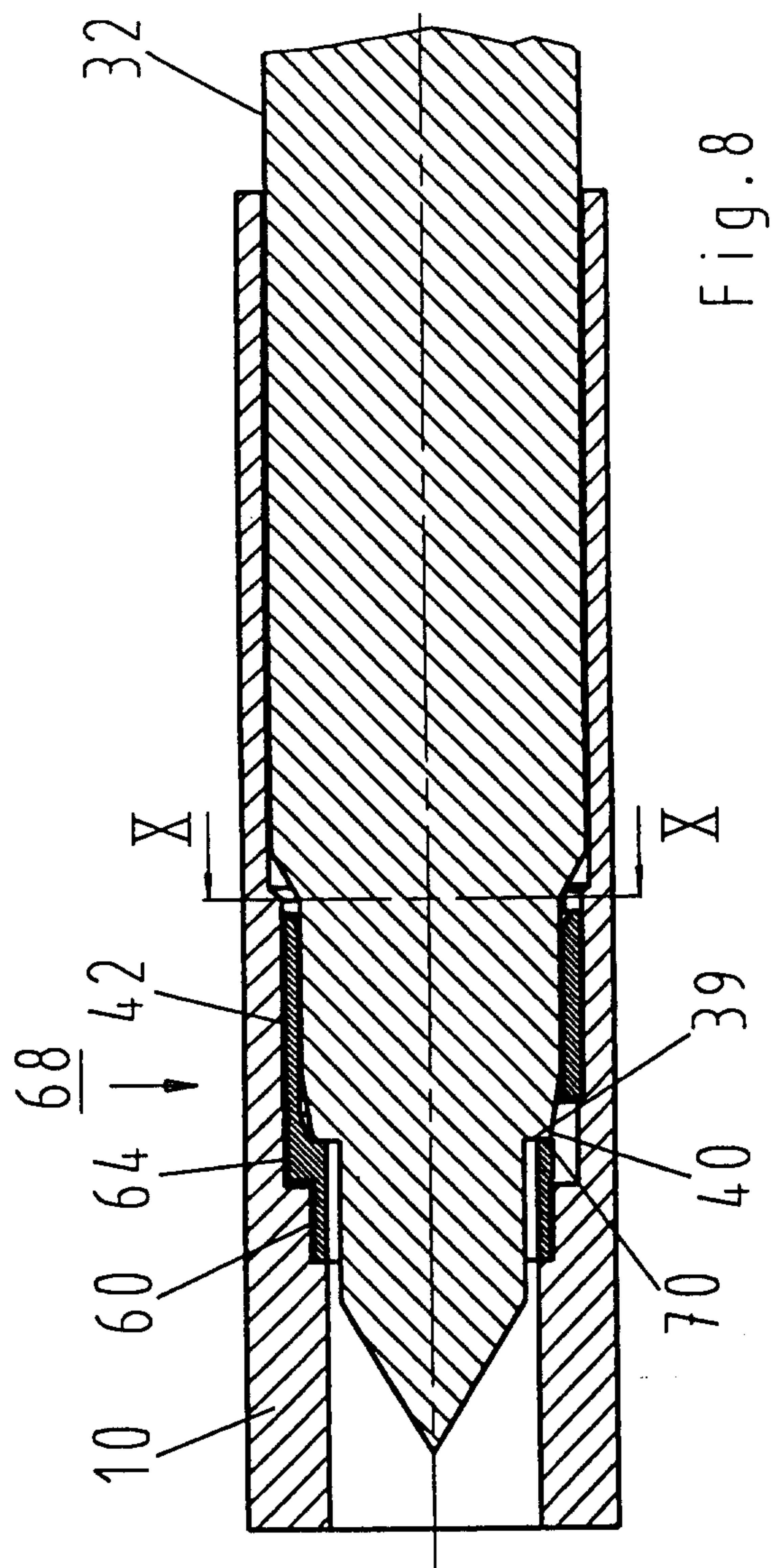


Fig. 7



8.
5.
1.
4.

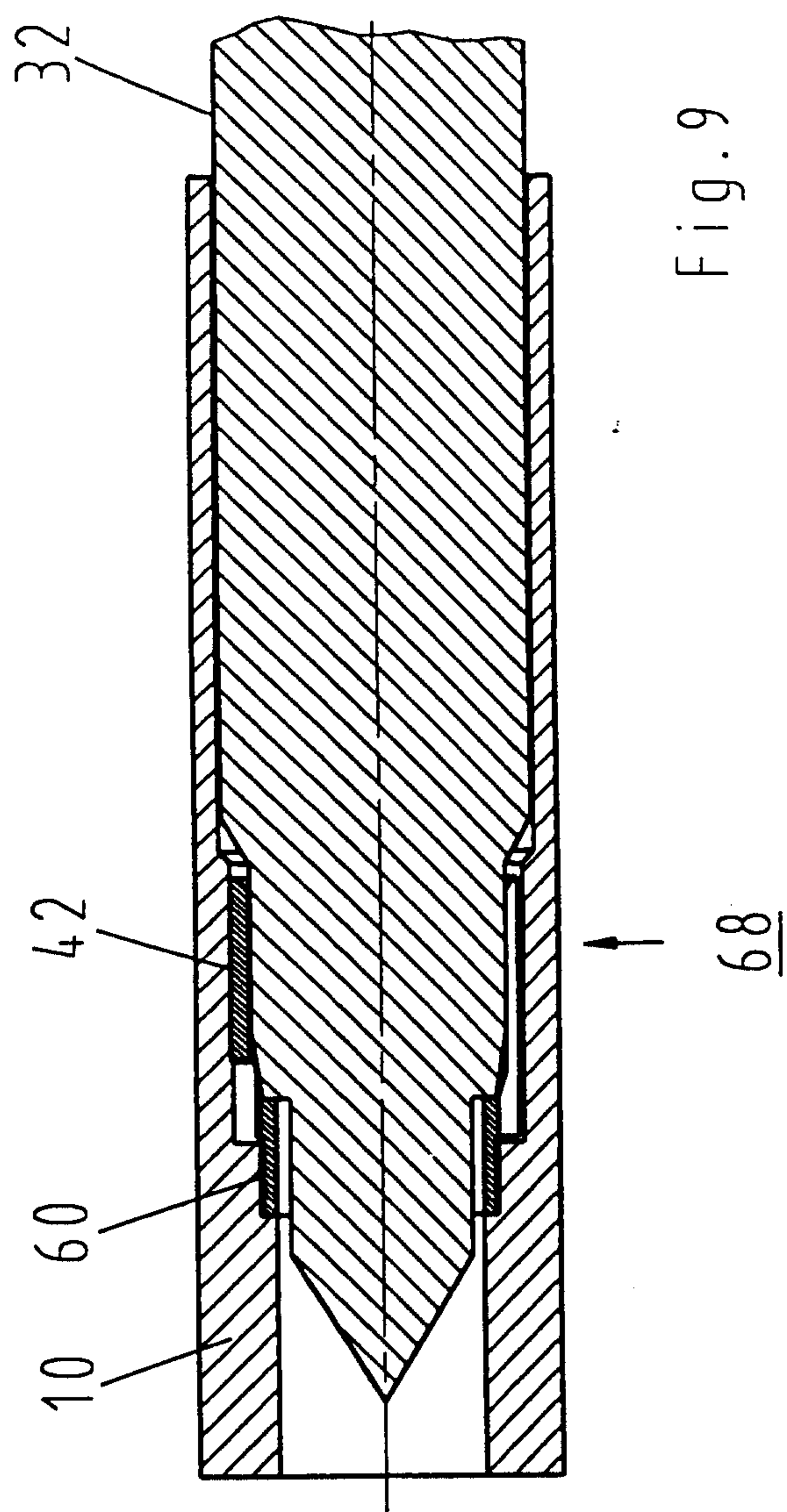


Fig. 9

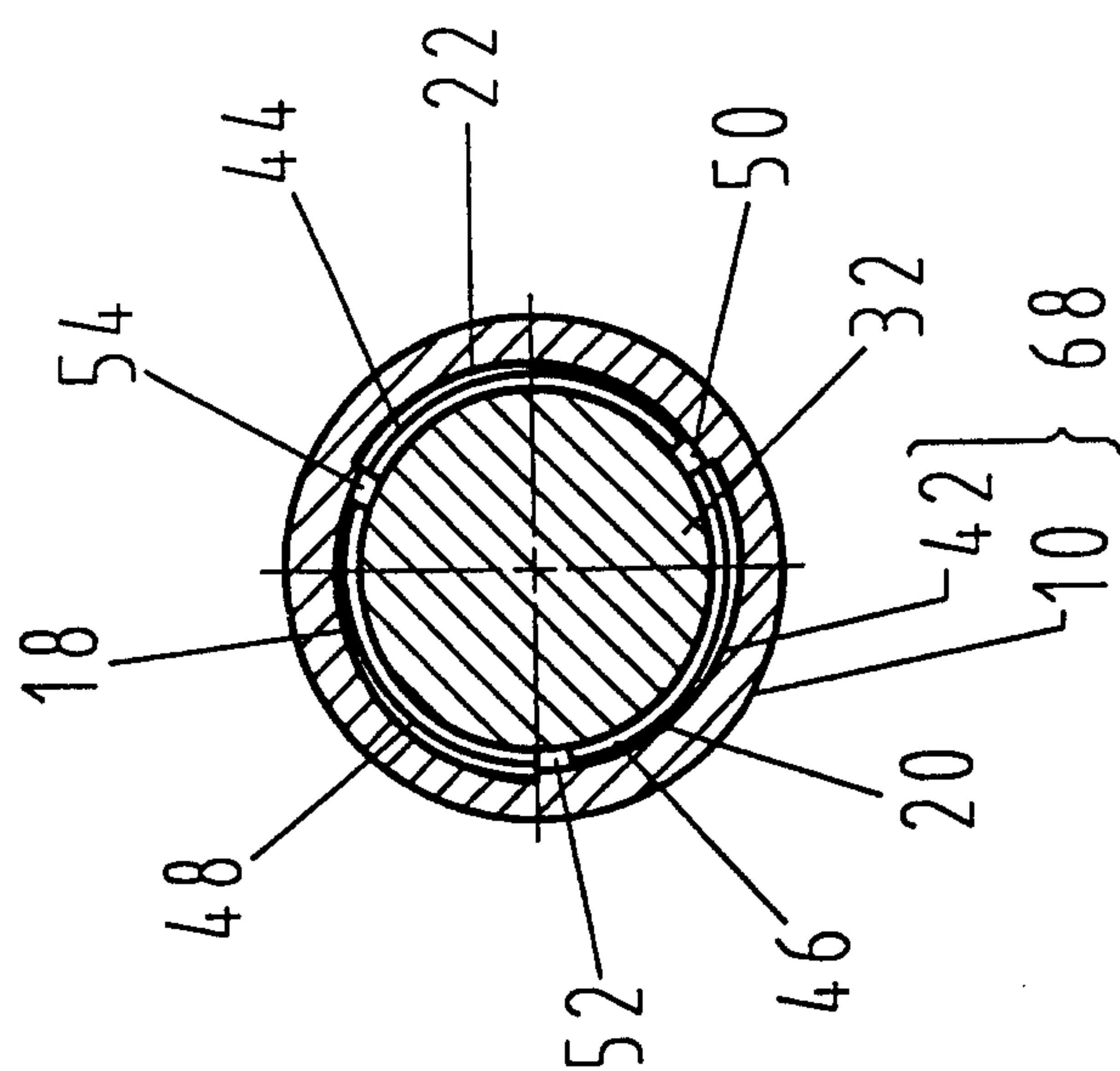


Fig. 10

